

Abstract of the Disclosure

HIGH SPEED EXHAUST GAS RECIRCULATION VALVE

In order to minimize pollutants such as Nox, internal combustion engines typically include an exhaust gas recirculation (EGR) valve that can be used to redirect a portion of exhaust gases to an intake conduit, such as an intake manifold, so that the redirected exhaust gases will be recycled. It is desirable to have an EGR valve with fast-acting capabilities, and it is also desirable to have the EGR valve take up as little space as possible. An exhaust gas recirculation valve is provided that includes an exhaust passage tube, a valve element pivotally mounted within the exhaust passage tube, a linear actuator; and a gear train. The gear train includes a rack gear operatively connected to the linear actuator, and at least one rotatable gear meshing with the rack gear and operatively connected to the valve element to cause rotation of the valve element upon actuation of the linear actuator. The apparatus provides a highly compact package having a high-speed valve actuation capability.